BIOL 4430 | Wetland Ecology

Course Outline | Fall 2026 | Department of Biology

Course information

Lecture	AT 2006 | Tuesdays and Thursdays, 8:30-9:30 a.m.
Laboratory	CB 3013 | Thursdays, 11:30 a.m.-2:30 p.m.
Course site	Announcements, resources, and assignment instructions will be posted on myCourseLink.
Course fee	None

Teaching team

Role	Name	Contact	Office and availability
Instructor	Dr. Qianshi Lin	qlin9@lakeheadu.ca 807-343-8010 ext. 8351	CB 4015 Tuesdays and Thursdays, 10:00-11:00 a.m.; otherwise by appointment
Technologist	Kristi Valley	kedysiev@lakeheadu.ca 807-343-8010 ext. 8506	CB 3012A (through CB 3013) Drop in or email
Teaching Assistant	Myles Cummins	mccummin@lakeheadu.ca	Contact by email

Course overview

Wetland Ecology is an interdisciplinary course exploring the structure, functions, and processes of wetlands and their importance to environmental sustainability. The course integrates the physical, chemical, and biological characteristics of wetland ecosystems, including hydrology, soils, nutrient cycling, primary productivity, biodiversity, and wetland plant and animal communities.

Land acknowledgement

Lakehead University respectfully acknowledges its campuses are located on the traditional lands of Indigenous peoples. This Thunder Bay course takes place on the traditional lands of Fort William First Nation, a signatory to the Robinson-Superior Treaty of 1850, and within lands to which many Indigenous nations maintain enduring relationships. Read Lakehead University's full land acknowledgement.

Learning outcomes

By the end of the course, students should be able to:

- Explain how hydrology, soils, biogeochemistry, and biological communities interact to shape wetland ecosystems.
- Compare major wetland classes and recognize the environmental conditions and indicator species associated with them.
- Collect and document field observations and ecological measurements using appropriate wetland sampling methods.
- Identify common wetland plants and interpret patterns in wetland vegetation and animal communities.
- Analyze wetland data using Excel and R, including hydrological gradients, community structure, and diversity metrics.
- Integrate field and analytical evidence in a clear scientific report and apply that evidence to wetland classification and management questions.

Materials and resources

Required

- **Textbook:** Mitsch, W. J., Gosselink, J. G., Anderson, C. J., & Fennessy, M. S. (2023). *Wetlands* (6th ed.). Wiley. ISBN 978-1-119-82695-8. Cost: E-Book $158.99 from bookstore, and other editions are acceptable. Publisher information
- Wetland Ecology lab manual (posted on myCourseLink).
- Field Guide to the Wetland Ecosystem Classification for Northwestern Ontario (NWST Field Guide FG-01, May 1996; posted on myCourseLink).
- A field notebook and pencil for recording observations, methods, and sample information. A waterproof notebook is preferable but not essential.
- A phone or other device capable of taking photographs and recording GPS locations.
- For Labs 8-11, access to a computer with Microsoft Excel and R. Both are available through the virtual computer in myCourseLink under Other Tools; laptops may also be borrowed from the Lakehead University Library.

Suggested for fieldwork

- Knee-high rubber boots
- Weather-appropriate clothing, including rain gear
- Insect repellent
- Plant identification books (additional references will be available during lab periods)

Course schedule

Lecture outline

Week of	Tentative topic
Sept. 7	Introduction | Importance of wetlands

Week of	Tentative topic
Sept. 14	Wetlands of the World
Sept. 21	Wetland Hydrology
Sept. 28	Wetland Soils
Oct. 5	Wetland Biogeochemistry
Oct. 12	**Thanksgiving and Reading Week | No lecture**
Oct. 19	Wetland Vegetation and Succession
Oct. 26	**Midterm on Tuesday, Oct. 27**
Nov. 2	Coastal Wetlands
Nov. 9	Freshwater Marshes and Swamps
Nov. 16	Peatlands
Nov. 23	Survey of Wetland Types
Nov. 30	Management of Wetlands: Case Studies
TBA	**Final examination**

The schedule is subject to change at the instructor's discretion. Any changes will be communicated in class and through myCourseLink.

Laboratory schedule

Lab	Date	Description	Notes and due dates
Lab 1	Sept. 10	Field trip to Williams Bog: Soils and Hydrology	Meet in the lab prepared to go outside.
Lab 2	Sept. 17	Field trip to Williams Bog: Plant Community Structure	Meet in the lab prepared to go outside.
Lab 3	Sept. 24	Field trip to Williams Bog: Birds	Meet in the lab prepared to go outside.
Lab 4	Oct. 1	Plant ID #1: Marshes and Swamps	
Lab 5	Oct. 8	Plant ID #2: Bogs and Fens	
Reading Week	**Oct. 12-16**	**No lecture or lab**	
Lab 6	**Oct. 22**	**Lab Exam**	**After the exam, meet in the lab to weigh sediment samples.**
Lab 7	Oct. 29	Report Introduction and Wetland Classification Tutorial	Wetland Ecosite Assignment due in lab
Lab 8	Nov. 5	Data Analysis: Soil Profiles and Hydrological Gradients	

Lab	Date	Description	Notes and due dates
Lab 9	Nov. 12	Data Analysis: Vegetation Data and Community Structure	
Lab 10	Nov. 19	Data Analysis: Diversity Metrics and Ecological Interpretation	
Lab 11	Nov. 26	Data Analysis: Bird Acoustics	Bird Acoustics Assignment due in lab
Lab 12	**Dec. 3**	**No lab**	**Formal Report due**

Assignments and evaluation

Assessment	Date(s)	Value
Lecture component		**40%**
Midterm	Oct. 27	15%
Final Examination	TBA	25%
Lab component		**60%**
Field Trip Participation	Sept. 10, 17, and 24	5%
Lab Exam	Oct. 22	15%
Wetland Ecosite Assignment	Oct. 29	5%
Bird Acoustics Assignment	Nov. 26	5%
Formal Report	Dec. 3	30%
Total		**100%**

Course expectations

Assignments and in-lab work

Assignment instructions will be provided during scheduled lab time and posted on myCourseLink. The two in-lab assignments must be completed during their scheduled lab periods unless alternate arrangements have been approved.

Late or missed work

Term tests must be written on the designated date unless prior arrangements have been made. Students who expect to miss, or have missed, term work because of illness or another extenuating circumstance should notify the instructor promptly and follow Lakehead University's Missed or Late Academic Term Work process. Eligible short-term absences may be addressed through the University's self-declaration process.

Unless an alternate arrangement or approved accommodation applies, late assignments will lose 10% of the designated mark per calendar day, including weekends and holidays.

Field trips

Field trips are an integral part of this course and take place exclusively during scheduled laboratory periods; attendance is therefore mandatory. Five percent (5%) of the course grade is assigned to field trip participation. Attendance alone is the minimum requirement: students are expected to arrive prepared, understand the day's expectations, and complete all assigned tasks.

To receive full marks, students must arrive on time (the bus will not wait), carry field equipment, work collaboratively, divide tasks appropriately, and collect samples and data efficiently. Incomplete participation may leave a group without sufficient data to complete the formal report.

> **Field readiness:** Fieldwork requires off-trail travel through uneven, wet bog terrain and shared carrying of equipment and samples. Dress for the weather and follow all safety directions provided by the instructional team.

Communication and schedule changes

Students are responsible for checking their Lakehead email and myCourseLink regularly. The lecture and laboratory schedules are tentative; necessary changes will be announced in class and posted on myCourseLink.

University policies and student supports

University regulations

> **Academic Calendar:** "It is the responsibility of each student registered at Lakehead University to be familiar with, and comply with all the terms, requirements, regulations, policies and conditions in the Lakehead University Academic Calendar. This includes, but is not limited to, Academic Program Requirements, Academic Schedule of Dates, University and Faculty/School Policies and Regulations and the Fees and Refund Policies and Schedules."

University policies are available through Lakehead's Policies and Procedures directory. Students should pay particular attention to regulations and student-related policies.

Academic integrity and collaboration

While cooperative learning is encouraged, academic misconduct, including plagiarism, is strictly forbidden. All tests and assignments must be completed individually unless explicitly stated otherwise. A breach may result in a null grade on the assignment and will be reported in accordance with University procedures.

Students are expected to understand and follow Lakehead University's Student Code of Conduct - Academic Integrity. The Code describes student responsibilities, prohibited academic conduct, investigation procedures, and possible sanctions. Students seeking further guidance can consult the Teaching Commons and the University's academic integrity resources.

Generative artificial intelligence

Any use of GenAI systems to produce assignments for this course is not permitted. All work submitted for evaluation in this course must be the student's original work. Submitting any work containing AI-generated content will be considered a violation of academic integrity.

Students should review Lakehead's guidance on ChatGPT and other AI tools and ask the instructor if expectations are unclear.

Copyright compliance

I understand and agree that all instructional, reference, and administrative materials to which I am given access in this course (the "course materials"), whether they consist of text, still or kinetic images, or sound, whether they are in digital or hard copy formats, and in whatever media they are offered, are protected in their entirety by copyright, and that to comply with this copyright and the law:

(a) I may access and download the course materials only for my own personal and non-commercial use for this course; and

(b) I am not permitted to download, copy, store (in any medium), forward or share, transmit, broadcast, show, post or play in public, adapt, or change in any way any text, image, or sound component of the course materials for any other purpose whatsoever except as expressly authorized, and only to the extent authorized, in writing, by the course instructor or relevant copyright holder of the course material.

I further understand and agree that, if I infringe the copyright of the course materials in any way, I may be prosecuted under the Lakehead University Student Code of Conduct - Academic Integrity, which requires students to act ethically and with integrity in academic matters and to demonstrate behaviours that support the University's academic values.

Accessibility and academic accommodations

Lakehead University is committed to achieving full accessibility for persons with disabilities/medical conditions. Part of this commitment includes arranging academic accommodations for students with disabilities/medical conditions to ensure they have an equitable opportunity to participate in all of their academic activities. If you are a student with a disability/medical condition and think you may need accommodations, you are strongly encouraged to contact Student Accessibility Services (SAS) and register as early as possible.

For more information, email sas@lakeheadu.ca or visit Student Accessibility Services.

Student supports

- Health and Wellness
- Student Success Centre
- Student Accessibility Services
- Chancellor Paterson Library
- Academic Support Zone (writing and math tutoring)